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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,660	12/08/2003	Peter D. Karabinis	9301-2IP	4855

20792 7590 05/28/2008
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EXAMINER	
LEE, JOHN J	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
05/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/730,660	KARABINIS, PETER D.	
	Examiner	Art Unit	
	JOHN J. LEE	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 1-5 in Pre-Appeal Brief Request, filed 12/19/2007, with respect to claims 1-42 have been fully considered and are persuasive. The previous final rejection has been withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-4, 8-11, 15-18, 22-25, 29-32, and 36-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Regulinski et al. (US 2005/0260948) in view of Emmons, Jr. et al. (US 6,570,858).

Regarding **claim 1**, Regulinski teaches a satellite radiotelephone system (Fig. 1). Regulinski teaches that a space-based component (satellite (4) in Fig. 1) that is configured to receive wireless communications from radiotelephones (2 in Fig. 11) (satellite (4) wirelessly receives signal or communication frequency from the mobile terminal) in a satellite footprint (Fig. 11 teaches satellite footprint, also Fig. 4a) over an uplink satellite radiotelephone frequency (uplink satellite radio frequency in Fig. 1) and to transmit wireless communications (downlink wireless communication frequency see Fig. 11) to the radiotelephones (2 in Fig. 11) over a downlink satellite radiotelephone

frequency (downlink satellite radio frequency in Fig. 1) (Fig. 11 and pages 3, paragraphs 50, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication). Regulinski teaches that an ancillary terrestrial network (terrestrial node (119) in Fig. 11) that is configured to transmit wireless communications (wirelessly transmitting to downlink radio frequency) to, and receive wireless communications (wirelessly receiving uplink radio frequency) from, the radiotelephones (mobile terminals) over the downlink satellite radiotelephone frequency (downlink satellite radio frequency) in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regulinski does not specifically teach the limitation "the radiotelephones over the downlink satellite radiotelephone frequency in a time-division duplex mode". However, Emmons teaches the limitation "the radiotelephones over the downlink satellite

radiotelephone frequency in a time-division duplex mode" (column 4, lines 8 – 59 and Fig. 1, where teaches downlink satellite radio frequency in a time duplex system). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Regulinski's system as taught by Emmons, provide the motivation to achieve improving satellite communication for downlink and uplink transmission and reception in time division duplex system.

Regarding **claim 2**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the ancillary terrestrial network also is configured to transmit wireless communications to (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11), and receive wireless communications from, the radiotelephones over the uplink satellite radiotelephone frequency in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 3**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) includes a frame (Fig. 6) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots) and wherein at least a second one of the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio

frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 4**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the downlink satellite radiotelephone frequency comprises a downlink satellite radiotelephone frequency band (downlink satellite radio frequency band in Fig. 9) and wherein the ancillary terrestrial network (119 in Fig. 11) is configured to transmit wireless communications to, and receive wireless communications from, the radiotelephones (terrestrial downlink and uplink frequency band) over the downlink satellite radiotelephone frequency band (downlink satellite radio frequency band Fig. 9, 10) in a time-division duplex mode (Fig. 9, 10, pages 3, paragraphs 50 and pages 8, paragraphs 143, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency band allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 8**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that an ancillary terrestrial component (terrestrial node (119) in Fig. 11) for a satellite radiotelephone system (Fig. 1) that includes a space-based component (satellite (4) in Fig. 1) that is configured to receive wireless communications from radiotelephones (2 in Fig. 11) (satellite (4) wirelessly

receives signal or communication frequency from the mobile terminal) in a satellite footprint (Fig. 11 teaches satellite footprint, also Fig. 4a) over an uplink satellite radiotelephone frequency (uplink satellite radio frequency in Fig. 1) and to transmit wireless communications (downlink wireless communication frequency see Fig. 11) to the radiotelephones (2 in Fig. 11) over a downlink satellite radiotelephone frequency (downlink satellite radio frequency in Fig. 1) (Fig. 11 and pages 3, paragraphs 50, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call). Regulinski teaches that the ancillary terrestrial component (terrestrial node (119) in Fig. 11) comprises an electronics system (electronics system in Fig. 1 and pages 4, paragraphs 87) that is configured to transmit wireless communications to (wirelessly transmitting to downlink radio frequency), and receive wireless communications (wirelessly receiving uplink radio frequency) from, the radiotelephones (mobile terminals) over the downlink satellite radiotelephone frequency (downlink satellite radio frequency) in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a

particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 9**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the electronic system also is configured to transmit wireless communications to, and receive wireless communications from, the radiotelephones over the uplink satellite radiotelephone frequency in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 10**, Regulinski and Emmons teach all the limitation as discussed in claims 1 and 8. Furthermore, Regulinski teaches that the time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig.

11) includes a frame (Fig. 6) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots) and wherein at least a second one of the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 11**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the downlink satellite radiotelephone frequency comprises a downlink satellite radiotelephone frequency band (downlink satellite radio frequency band in Fig. 9) and wherein the electronics system (119 in Fig.

11) is configured to transmit wireless communications to, and receive wireless communications from, the radiotelephones (terrestrial downlink and uplink frequency band) over the downlink satellite radiotelephone frequency band (downlink satellite radio frequency band Fig. 9, 10) in a time-division duplex mode (Fig. 9, 10, pages 3, paragraphs 50 and pages 8, paragraphs 143, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency band allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 15**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that an electronics system (mobile terminal or base station) that is configured to transmit wireless communications to a space-based component (satellite (4) in Fig. 1) over an uplink satellite radiotelephone frequency (satellite (4) wirelessly receives signal or communication frequency from the mobile terminal) and to receive wireless communications (uplink wireless communication frequency see Fig. 11) from the space-based component (satellite (4) in Fig. 1) over a downlink satellite radiotelephone frequency (downlink satellite radio frequency in Fig. 11) (Fig. 11 and pages 3, paragraphs 50, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel to mobile terminal and uplink channel from

mobile terminal, for example a TDMA time slot on a particular frequency allocated on initiation of a communication). Regulinski teaches that the electronics system (terrestrial node or mobile terminal in Fig. 11) further configured to transmit wireless communications to (wirelessly transmitting to uplink radio frequency), and receive wireless communications from (wirelessly receiving downlink radio frequency), an ancillary terrestrial component (119 in Fig. 11) over the downlink satellite radiotelephone frequency (downlink satellite radio frequency) in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 16**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the electronic system also is configured to transmit wireless communications to, and receive wireless communications from, the ancillary terrestrial component over the uplink satellite radiotelephone frequency in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite

system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite or base station via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 17,** Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) includes a frame (Fig. 6) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications to the ancillary terrestrial component (base station or mobile terminal in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to base station and mobile terminal over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots)

and wherein at least a second one of the slots is used to receive wireless communications from the ancillary terrestrial component (base station or mobile terminal in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network and base station, each mobile terminal is in communication with satellite or base station via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 18**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the downlink satellite radiotelephone frequency comprises a downlink satellite radiotelephone frequency band (downlink satellite radio frequency band in Fig. 9) and wherein the electronics system (mobile terminal or base station in Fig. 11) also is configured to transmit wireless communications to, and receive wireless communications from, the ancillary terrestrial component (base station or mobile terminal in Fig. 11) (terrestrial downlink and uplink frequency band) over the downlink satellite radiotelephone frequency band (downlink satellite radio frequency band Fig. 9, 10) in a time-division duplex mode (Fig. 9, 10, pages 3, paragraphs 50 and pages 8, paragraphs 143, where teaches for communication

via the satellite network and base station, each mobile terminal is in communication with satellite or base station via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency band allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 22**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that a satellite radiotelephone communication (Fig. 1). Regulinski teaches that receiving wireless communications (receiving uplink communication in Fig. 11) at a space-based component (satellite (4) in Fig. 1) from radiotelephones (2 in Fig. 11) (satellite (4) wirelessly receives signal or communication frequency from the mobile terminal) in a satellite footprint (Fig. 11 teaches satellite footprint, also Fig. 4a) over an uplink satellite radiotelephone frequency (uplink satellite radio frequency in Fig. 1) (Fig. 11 and pages 3, paragraphs 50, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication). Regulinski teaches that transmitting wireless communications (Fig. 11 teaches satellite transmits wireless communication frequency to mobile terminal) from the space-based component (satellite (4) in Fig. 1) to the radiotelephones (2 in Fig. 11) over a downlink radiotelephone frequency (Fig. 11 and pages 3, paragraphs 50, where teaches for communication via the satellite network, each mobile terminal is in

communication with satellite via full duplex channel comprises a downlink channel for satellite transmits wireless communication channels to mobile terminal and uplink channel for mobile terminal transmits wireless communication channels to satellite, for example a TDMA time slot on a particular frequency allocated on initiation of a communication). Regulinski teaches that transmitting wireless communications from an ancillary terrestrial network (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11) to the radiotelephones and transmitting wireless communications (wirelessly transmitting to downlink radio frequency) from the radiotelephones (mobile terminal has a dual mode for recognizing satellite channels and terrestrial network channels) to the ancillary terrestrial network (terrestrial node (119) in Fig. 11) over the downlink satellite radiotelephone frequency in a time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 23**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that transmitting wireless communications from the ancillary terrestrial network (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11) to the radiotelephones (112 in Fig. 11) and transmitting wireless communications from the radiotelephones to the ancillary terrestrial network (Fig. 11) over the uplink satellite radiotelephone frequency in a time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 24**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) includes a frame (Fig. 7) including a plurality of slots (Fig. 7 teaches frequency band having a plurality of

slots), wherein at least a first one of the slots is used to transmit wireless communications from the ancillary terrestrial network to the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency from the ancillary terrestrial network) (see pages 4, paragraphs 80 – 84, where teaches each ancillary terrestrial base station generates wireless communication frequency band including a plurality of frames having a plurality of slots wherein downlink slots) and wherein at least a second one of the slots is used to transmit wireless communications from the radiotelephones to the ancillary terrestrial network over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network or terrestrial base station, each mobile terminal is in communication with satellite or base station via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency (a plurality of time slots) to mobile terminal and receives uplink the radio frequency (a plurality of time slots) from mobile terminal in a TDMA duplex mode).

Regarding **claim 25**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the downlink satellite radiotelephone frequency comprises a downlink satellite radiotelephone frequency band (downlink

satellite radio frequency band in Fig. 9) and wherein the method further comprises transmitting wireless communications from the ancillary terrestrial network (119 in Fig. 11) to the radiotelephones (terrestrial downlink and uplink frequency band) and transmitting wireless communications from the radiotelephones to the ancillary terrestrial network (terrestrial downlink and uplink frequency band) over the downlink satellite radiotelephone frequency band (downlink satellite radio frequency band Fig. 9, 10) in a time-division duplex mode (Fig. 9, 10, pages 3, paragraphs 50 and pages 8, paragraphs 143, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency band allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 29**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that transmitting wireless communications from an ancillary terrestrial network (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11) to radiotelephones (Fig. 11 teaches mobile terminal has a dual mode for recognizing satellite channels and terrestrial network channels) and receiving wireless communications from the radiotelephones (wirelessly transmitting to uplink radio frequency) at the ancillary terrestrial network (terrestrial node (119) in Fig. 11) over a downlink satellite radiotelephone frequency in a time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11)

(see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 30**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that transmitting wireless communications from the ancillary terrestrial network (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11) to the radiotelephones (112 in Fig. 11) and receiving wireless communications from the radiotelephones at the ancillary terrestrial network (Fig. 11) over an uplink satellite radiotelephone frequency in a time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on

initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 31**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) includes a frame (Fig. 7) including a plurality of slots (Fig. 7 teaches frequency band having a plurality of slots), wherein at least a first one of the slots is used to transmit wireless communications from the ancillary terrestrial network to the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency from the ancillary terrestrial network) (see pages 4, paragraphs 80 – 84, where teaches each ancillary terrestrial base station generates wireless communication frequency band including a plurality of frames having a plurality of slots wherein downlink slots) and wherein at least a second one of the slots is used to receive wireless communications from the radiotelephones at the ancillary terrestrial network over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to transmit wirelessly communications from mobile terminals over the downlink radio frequency to terrestrial base station) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via

the satellite network or terrestrial base station, each mobile terminal is in communication with satellite or base station via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency (a plurality of time slots) to mobile terminal and receives uplink the radio frequency (a plurality of time slots) from mobile terminal in a TDMA duplex mode).

Regarding **claim 32**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the downlink satellite radiotelephone frequency comprises a downlink satellite radiotelephone frequency band (downlink satellite radio frequency band in Fig. 9) and wherein the transmitting comprises transmitting wireless communications from the ancillary terrestrial network (119 in Fig. 11) to the radiotelephones (terrestrial downlink and uplink frequency band) and receiving wireless communications from the radiotelephones at the ancillary terrestrial network (terrestrial downlink and uplink frequency band) over the downlink satellite radiotelephone frequency band (downlink satellite radio frequency band Fig. 9, 10) in a time-division duplex mode (Fig. 9, 10, pages 3, paragraphs 50 and pages 8, paragraphs 143, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency band allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 36**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that receiving wireless communications from an ancillary terrestrial network (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11) at radiotelephones (Fig. 11 teaches mobile terminal has a dual mode for recognizing satellite channels and terrestrial network channels) and transmitting wireless communications from the radiotelephones (wirelessly transmitting to uplink radio frequency) to the ancillary terrestrial network (terrestrial node (119) in Fig. 11) over a downlink satellite radiotelephone frequency in a time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 37**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that receiving wireless communications from the ancillary terrestrial network (terrestrial node (119) transmits wireless communication channels to mobile terminals in Fig. 11) at the radiotelephones (112 in Fig. 11) and

transmitting wireless communications from the radiotelephones to the ancillary terrestrial network (119 in Fig. 11) over an uplink satellite radiotelephone frequency in a time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) (Fig. 11, pages 3, paragraphs 50, 58, and pages 8, paragraphs 148 - 149, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claim 38**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) includes a frame (Fig. 7) including a plurality of slots (Fig. 7 teaches frequency band having a plurality of slots), wherein at least a first one of the slots is used to receive wireless communications from the ancillary terrestrial network at the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the

downlink radio frequency from the ancillary terrestrial network) (see pages 4, paragraphs 80 – 84, where teaches each ancillary terrestrial base station generates wireless communication frequency band including a plurality of frames having a plurality of slots wherein downlink slots) and wherein at least a second one of the slots is used to transmit wireless communications from the radiotelephones to the ancillary terrestrial network over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to transmit wirelessly communications from mobile terminals over the downlink radio frequency to terrestrial base station) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network or terrestrial base station, each mobile terminal is in communication with satellite or base station via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency (a plurality of time slots) to mobile terminal and receives uplink the radio frequency (a plurality of time slots) from mobile terminal in a TDMA duplex mode).

Regarding **claim 39**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the downlink satellite radiotelephone frequency comprises a downlink satellite radiotelephone frequency band (downlink satellite radio frequency band in Fig. 9) and wherein the receiving comprises receiving wireless communications from the ancillary terrestrial network (119 in Fig. 11) at the radiotelephone (terrestrial downlink and uplink frequency band), and transmitting wireless communications from the radiotelephones to the ancillary terrestrial network

(terrestrial downlink and uplink frequency band) over the downlink satellite radiotelephone frequency band (downlink satellite radio frequency band Fig. 9, 10) in a time-division duplex mode(Fig. 9, 10, pages 3, paragraphs 50 and pages 8, paragraphs 143, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency band allocated on initiation of a communication, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

4. **Claims 5, 12, 19, 26, 33, and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Regulinski in view of Emmons.

Regarding **claims 5, 12, and 19**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Regulinski teaches that the time-division duplex mode (TDMA uplink and downlink mode) includes a frame (channel frame) including a plurality of slots (Fig. 7 teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots), wherein a first number of the slots (Fig. 7) is used to transmit wireless communications (satellite downlink frequency band comprises a plurality of slots) to the radiotelephones (2 in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 7 teaches satellite downlink frequency) and wherein a second number of the slots (Fig. 7) is used to receive wireless communications (satellite uplink frequency band comprises a

plurality of slots) from the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches satellite frequency bands), wherein the first number is greater than the second number (pages 6, paragraphs 110 – 112 and Fig. 1, where teaches satellite or base station is dynamically allocated the channels based on channel request from receiver desired, means that receiver desired a lot of data stream for video demand, and it is inherently transmitting channels (slots) is greater than receiving channels (slots), also oppositely as the receiver desired to transmit the data, such that pictures, video, text, it is inherently transmitting channels (slots) is greater than receiving channels (slots)).

Regulinski and Emmons do not exactly disclose the limitation "the first (downlink) number (slots) is greater than the second (uplink) number (slots)". However, this would have been obvious to one having ordinary skill in the art at the time of Applicant's invention, because the Regulinski teaches dynamically channel/frequency allocation of uplink and downlink frequencies used by a number of terrestrial stations and the satellite network is performed (see page 6, paragraphs 110 - 112 and Fig. 1), more specifically, satellite or base station is dynamically allocated the channels based on channel request from receiver desired, means that receiver desired a lot of data stream for video demand, and it is obviously transmitting channels (slots) is greater than receiving channels (slots), also oppositely as the receiver desired to transmit the data, such that pictures, video, text, it is inherently transmitting channels (slots) is greater than receiving channels (slots), regarding the claimed limitation, provide the motivation to achieve optimal channel allocation for wireless communication units in order to improve communication reliability.

Regarding **claims 26, 33, and 40**, Regulinski and Emmons teach all the limitation as discussed in claim 5. Furthermore, Regulinski further teaches that the time-division duplex mode (TDMA uplink and downlink mode) includes a frame (channel frame in Fig. 7) including a plurality of slots (Fig. 7 teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots), wherein a first number of the slots (Fig. 7) is used to transmit wireless communications (ancillary terrestrial base station downlink frequency band comprises a plurality of slots) from the ancillary terrestrial network (119 in Fig. 11) to the radiotelephones (2 in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 7 teaches satellite downlink frequency) and wherein a second number of the slots (Fig. 7) is used to transmit wireless communications (uplink frequency band of the base station comprises a plurality of slots) from the radiotelephones to the ancillary terrestrial network (119 in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 7 teaches satellite frequency bands), wherein the first number is greater than the second number (pages 6, paragraphs 110 – 112 and Fig. 1, where teaches satellite or base station is dynamically allocated the channels based on channel request from receiver desired, means that receiver desired a lot of data stream for video demand, and it is inherently transmitting channels (slots) is greater than receiving channels (slots), also oppositely as the receiver desired to transmit the data, such that pictures, video, text, it is inherently transmitting channels (slots) is greater than receiving channels (slots)).

5. **Claims 6, 7, 13, 14, 20, 21, 27, 28, 34, 35, 41, and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Regulinski in view of Emmons and in further view of Balachandran et al. (US 7,142,580).

Regarding **claims 6, 13, and 20**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) includes a frame (Fig. 6) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots) and wherein at least a second one of the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and

uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regulinski and Emmons do not specifically disclose the limitation "transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency using EDGE modulation **or** protocol, and the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency using GPRS modulation **or** protocol". However, Balachandran supportly teaches the limitation "transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency using EDGE modulation **or** protocol (the EDGE technology provides wireless radio signals communication (downlink and uplink) between mobile terminals and base station via satellite for optimization techniques that is using a standard GPRS/EGPRS or EDGE protocol see column 6, lines 65 – column 7, lines 10, Fig. 2, and column 7, lines 48 - 56), and the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency using GPRS modulation **or** protocol (column 5, lines 59 – column 6, lines 7 and Fig. 2, where teaches program for implementing the GSM/EGPRS protocol on the base station communicating with mobile terminals via satellite)". It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Regulinski and Emmons systems as taught by Balachandran, provide the motivation to achieve improving network

performance for using EGPRS or EDGE protocol for communication with mobile terminal and base station via satellite.

Regarding **claims 27, 34, and 41**, Regulinski, Emmons and Balachandran teach all the limitation as discussed in claim 6. Furthermore, Regulinski further teaches that the time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) includes a frame (Fig. 7) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications from the ancillary terrestrial network (119 in Fig. 11) to the radiotelephones (112 in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots) and wherein at least a second one of the slots is used to receive wireless communications at the ancillary terrestrial network from the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel

comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regarding **claims 7, 14, and 21**, Regulinski and Emmons teach all the limitation as discussed in claim 1. Furthermore, Regulinski teaches that the time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) includes a frame (Fig. 7) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots) and wherein at least a second one of the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network, each

mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Regulinski and Emmons do not specifically disclose the limitation "transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency using first modulation **or** protocol is more spectrally efficient than using second modulation **or** protocol that the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency". However, Balachandran supportly teaches the limitation "transmit wireless communications to the radiotelephones over the downlink satellite radiotelephone frequency using first modulation **or** protocol (the EDGE technology provides wireless radio signals communication (downlink and uplink) between mobile terminals and base station via satellite for optimization techniques that is using a standard EDGE protocol see column 6, lines 65 – column 7, lines 10, Fig. 2, and column 7, lines 48 - 56) is more spectrally efficient than using second modulation **or** protocol (column 5, lines 59 – column 6, lines 7 and Fig. 2, where teaches program for implementing the GSM/EGPRS or GPRS protocol on the base station communicating with mobile terminals via satellite) that the slots is used to receive wireless communications from the radiotelephones over the downlink satellite radiotelephone frequency" (see Fig. 2, column 9, lines 62 – column 10, lines 26, and column 2, lines 19 – 31, where teaches EDGE (first modulation **or**

protocol) provides greater spectral efficiencies than other modulation or protocol such that GPRS). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Regulinski and Emmons systems as taught by Balachandran, provide the motivation to achieve improving network performance, increase data rates and network capacity, for using EDGE protocol for communication with mobile terminal and base station via satellite.

Regarding **claims 28, 35, and 42**, Regulinski, Emmons and Balachandran teach all the limitation as discussed in claim 7. Furthermore, Regulinski further teaches that the time-division duplex mode (TDMA duplex mode in satellite mobile terminal in Fig. 11) (see pages 10, paragraphs 185, where teaches TDMA/FDMA satellite system and CDMA terrestrial system, also satellite system could be CDMA and the terrestrial system is TDMA/FDMA) includes a frame (Fig. 7) including a plurality of slots (a plurality of time slots in Fig. 7), wherein at least a first one of the slots is used to transmit wireless communications from the ancillary terrestrial network (119 in Fig. 11) to the radiotelephones (112 in Fig. 11) over the downlink satellite radiotelephone frequency (Fig. 7 teaches one of the slots (frequency bond comprising time slots) is used to transmit wirelessly communications to mobile terminals over the downlink radio frequency) (see pages 4, paragraphs 80 – 84, where teaches each satellite generates an array of beams covering a footprint beneath the satellite, each beam including a number of different frequency channels and time slots) and wherein at least a second one of the slots is used to transmit wireless communications from the radiotelephones to the ancillary terrestrial network over the downlink satellite radiotelephone frequency (Fig. 9 teaches second one

of the slots (frequency bond) is used to receive wirelessly communications to mobile terminals over the downlink radio frequency) (Fig. 9, 10, pages 3, paragraphs 50 and pages 4, paragraphs 80 – 81, where teaches for communication via the satellite network, each mobile terminal is in communication with satellite via full duplex channel comprises a downlink channel and uplink channel, for example a TDMA time slot on a particular frequency allocated on initiation of a call, and an terrestrial base node configures to transmit downlink the radio frequency to mobile terminal and receives uplink the radio frequency from mobile terminal in a TDMA duplex mode).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mullins (US 2002/0122408) discloses Satellite Communications with Satellite Routing According to Channels Assignment Signals.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

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J.L
May 23, 2008

John J Lee

/JOHN J LEE/
Primary Examiner, Art Unit 2618